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09/778,192	02/07/2001	David Charles Adams	ADN2653PIUS	9033

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EXAMINER

LEUNG, JENNIFER A

ART UNIT PAPER NUMBER

1764

DATE MAILED: 07/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/778,192

Applicant(s)

ADAMS ET AL.

Examiner

Jennifer A. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2006 and 15 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 10-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 13 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-14 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's amendments submitted on April 27, 2006 and August 15, 2005 have been received and carefully considered. Claims 10-12 are withdrawn from consideration. Claims 1-9, 13 and 14 are under consideration.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-3, 7-9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rouzier (US 3,595,846) in view of Spott (DE 3 233 557).

Regarding claims 1 and 2, Rouzier (FIG. 1; column 6, line 46 to column 7, line 69) discloses an apparatus comprising:

a circulation pump 42 having an inlet and an outlet; a reactor tube connecting the outlet of the circulation pump 42 with the inlet of the circulation pump 42 (i.e., including line 41, intervening station 40, and the right portion of tubular chamber 21 located between line 41 and station 40), said reactor tube being capable of receiving a cleaning pig (i.e., separators 26) and having at least one monomer feed (i.e., supplied to the reactor tube via pump 39, point 38) and at least one feed for a fluid phase which may comprise a solvent and monomer (i.e., supplied to the reactor tube via intake 31); the monomer feed and the fluid phase forming a polymer emulsion that is circulated by the circulation pump 42 along the entire length of the reactor tube, and at least one outlet (43,44) for the discharge of a portion of the emulsion; a by-pass tube (i.e., the left portion of the tubular chamber 21, located between line 41 and station 40) which circumvents the

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circulation pump 42; and a pig-receiving station (i.e., distributor 24; column 7, lines 30-47) which is in parallel connection with the circulation pump or the reactor tube, and further integrated into the bypass tube (i.e., integrated with the left portion of chamber 21, between line 41 and station 40).

Although Rouzier is silent as to the at least one feed for fluid phase 31 comprising a "water phase", it would have been obvious for one of ordinary skill in the art at the time the invention was made to select other known fluids, such as a water phase, for the at least one feed 31 in the apparatus of Rouzier, on the basis of suitability for the intended use (e.g., depending on the type of monomer feed), because polymerization with a water phase feed is well known in the art, as evidenced by Spott (e.g., "photo-initiated emulsion polymerization of water-soluble monomer"; translation of page 3, line 7 to page 4, line 2; Example beginning on page 12).

Regarding claim 3, the circulation pump 42 inherently comprises a suction side and a delivery side, as evidenced by the circulation of fluid from line 41, through the pump 42, and into the third intervening station 40 (see FIG. 1). Although not labeled in the figure, the reactor tube portion 21 comprises an aperture for enabling the draw off of fluid to line 41. Additionally, the left portion of chamber 21, between the suction and delivery sides 41 and 40 of the pump 42, serves as the pig receiving station (see FIG. 1).

Regarding claim 7, Rouzier discloses the reactor tube comprises means (i.e., pressurized reaction mixture flowing within reactor tube 21; column 4, lines 7-20) for directing a pig 26 into the pig receiving station 24.

Regarding claim 8, Rouzier further discloses that a substantial part of the reactor tube may be formed into at least one helical coil (see FIG. 2).

Regarding claim 9, Rouzier discloses, "The transfer of a separator 26 from the terminal point 23 to the point of origin 22 is controlled manually, or automatically by a suitable means including an automatic switch S operated at timed intervals or by the passage of a separator through a given point of the circuit, e.g., the point 46," (column 7, lines 64-69), and therefore, the apparatus will inherently comprises a pig detector for checking whether the pig (i.e., a separator 26) is present in the pig receiving station 24. An example of a known pig detector is further evidenced by Spott (i.e., a switching impulse generated by a photoelectric cell 17, which detects the presence of a pig 4; FIG. 1; translation of page 7, lines 14-21).

Regarding claim 13, Rouzier (FIG. 1; column 6, line 46 to column 7, line 69) discloses an apparatus comprising:

a circulation pump 42 having a suction side (facing 41) and a delivery side (facing 40); a reactor tube which connects the delivery side of the circulation pump 42 to the suction side of the circulation pump 42 (i.e., including line 41, intervening station 40, and the right portion of tubular chamber 21 located between line 41 and station 40); wherein the reactor tube has at least one inlet for monomer feed (i.e., as supplied via pump 39, point 38 to the reactor tube portion of the apparatus); at least one inlet for a fluid phase which may comprise a solvent and monomer (i.e., as supplied via intake 31 to the reactor tube portion of the apparatus); and an outlet for the discharge of a polymer emulsion (i.e., at fourth intervening station 43, with pump 44); a pig (i.e., separator 26), capable of circulating through the reactor tube; a by-pass tube (i.e., the left portion of the tubular chamber 21, located between line 41 and station 40) that circumvents the circulation pump 42; and a pig receiving station (i.e., distributor 24; column 7, lines 30-47) which is in parallel connection with the circulation pump or the reactor tube.

Rouzier discloses the pig receiving station (i.e., the distributor 24) may comprise an assembly of fixed elements, of which are assembled by any suitable means including bolts, rivets, welding, and soldering (column 9, lines 20-25; FIG. 6-9). As illustrated in FIG. 6, for example, the pig receiving station comprises a block 120 coupled to tubes 125 and 123 by means of threaded bolts, not labeled. Thus, the pig receiving station 24 in the apparatus of Rouzier is, inherently, releasably engaged to the by-pass tube or the reactor tube such that the pig receiving station may be separated from the apparatus.

Although Rouzier is silent as to the at least one feed for fluid phase 31 comprising a "water phase", it would have been obvious for one of ordinary skill in the art at the time the invention was made to select other known fluids, such as a water phase, for the at least one feed 31 in the apparatus of Rouzier, on the basis of suitability for the intended use (e.g., depending on the type of monomer feed), because polymerization with a water phase feed is well known in the art, as evidenced by Spott (e.g., "photo-initiated emulsion polymerization of water-soluble monomer"; translation of page 3, line 7 to page 4, line 2; Example beginning on page 12).

3. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rouzier (US 3,595,846) in view of Spott (DE 3 233 557), as applied to claim 1 above, and further in view of Wennerberg et al. (US 3,425,083).

Regarding claims 4 and 5, the aperture leading to draw off line 41 inherently has a width that is smaller than the width of the pig 26, as evidenced by only the reaction fluid flowing to line 41 (FIG. 1). Rouzier, however, is silent as to the aperture defining a "slot" that extends substantially in the longitudinal direction of the tube. Wennerberg et al. teaches an apparatus comprising a closed loop tube 3 having an aperture in the shape of a slot (i.e., longitudinally

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extending slots 5 or 12) for allowing a portion of the liquid within the tube to escape while maintaining the rest of the liquid and a ball 6 (i.e., pig) in circulation; the slots 5, 12 being small enough so that ball 6 is unable to pass; and the slots 5, 12 performing a function substantially identical to the function of the aperture Rouzier (column 2, lines 52-63). It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute a slot for the aperture in the apparatus of Rouzier, on the basis of suitability for the intended use, because substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

Regarding claim 6, although the collective teachings of Rouzier, Spott and Wennerberg et al. are silent as to the width of the slot increasing downstream, it would have been obvious for one of ordinary skill in the art at the time the invention was made select an appropriate configuration for the slot in the modified apparatus of Rouzier, on the basis of suitability for the intended use (i.e., for achieving a given flow rate through the slot), since it has been held that changes in size involve only ordinary skill in the art, and where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

4. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rouzier (US 3,595,846) in view of in view of Spott (DE 3 233 557) and Allen (US 3,220,432).

Rouzier (FIG. 1; column 6, line 46 to column 7, line 69) discloses an apparatus comprising:

a circulation pump 42 having a suction side (facing 41) and a delivery side (facing 40); a

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reactor tube which connects the delivery side of circulation pump 42 to the suction side of circulation pump 42 (i.e., including line 41, intervening station 40, and the right portion of tubular chamber 21 located between line 41 and station 40); wherein the reactor tube has at least one inlet for monomer feed (i.e., as supplied via pump 39, point 38 to the reactor tube portion of the apparatus); at least one inlet for a fluid phase which may comprise a solvent and monomer (i.e., as supplied via intake 31 to the reactor tube portion of the apparatus); and an outlet for the discharge of a polymer emulsion (i.e., at fourth intervening station 43, with pump 44); a by-pass tube (i.e., the left portion of the tubular chamber 21, located between line 41 and station 40) that circumvents the circulation pump 42; and a pig receiving station (i.e., distributor 24; column 7, lines 30-47) which is in parallel connection with the circulation pump or the reactor tube.

Although Rouzier is silent as to the at least one feed for fluid phase 31 comprising a "water phase", it would have been obvious for one of ordinary skill in the art at the time the invention was made to select other known fluids, such as a water phase, for the at least one feed 31 in the apparatus of Rouzier, on the basis of suitability for the intended use (e.g., depending on the type of monomer feed), because polymerization with a water phase feed is well known in the art, as evidenced by Spott (e.g., "photo-initiated emulsion polymerization of water-soluble monomer"; translation of page 3, line 7 to page 4, line 2; Example beginning on page 12).

Rouzier is further silent as to the pig receiving station 24 comprising a means for removing the pig from or inserting the pig into the pig receiving station without disruption to the flow of the polymer emulsion. Allen (column 4, lines 17-27; FIG. 1-3) teaches a pig receiving station (i.e., device 21) comprising means for removing a pig (i.e., separator 41) from or inserting a pig into the pig receiving station without flow disruption (i.e., by opening cover 34

and inserting a pig 41 via nipple 33 into pocket 40, or removing a pig 41 from pocket 40 via nipple 33). It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute a pig receiving station having means for inserting or removing a pig for the pig receiving station 24 in the apparatus of Rouzier, on the basis of suitability for the intended use, because a pig receiving station having means for removing or inserting a pig would permit the pig to be replaced or repaired, as taught by Allen (column 1, lines 30-43).

Response to Arguments

5. Applicant's arguments filed April 27, 2006 have been fully considered but they are not persuasive. Applicants (page 6, second paragraph) argue,

“It is clear from Rouzier that the line (41), circulation pump, (42) and intervening station (40) are not part of Rouzier's “reaction tube”. Instead, this pathway is one optional “intervening station” that may be utilized within the tubular reactor of Rouzier (21) when one would like to obtain a wider range of ages of macromolecules produced...Only a portion of the reaction medium is drawn through this pathway. The remaining reaction medium and reaction product continue past the line (41). And, as can be seen in Fig. 1, there are no monomer feeds, fluid feeds, or double covers (27) for temperature control present on the line (41), all of which one skill in the art would recognize as indicating that this pathway is not part of the reaction tube, since a reaction tube would require such feeds and temperature control.”

The Examiner respectfully disagrees and maintains that the modified apparatus of Rouzier structurally reads on the claims. For instance, claim 1 merely recites a “reactor tube”. Thus, any “tube” structure that is part of the apparatus structurally reads on a “reactor tube”. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from

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the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. It is noted that the features upon which applicant relies (e.g., a reactor tube requiring temperature control, etc.) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Furthermore, claim 1 merely recites a "reactor tube... having at least one monomer feed, at least one water phase feed...." As modified above, the apparatus of Rouzier comprises a reactor tube "having" a monomer feed and water phase feed; given that said feeds are flowing within the reactor tube. With respect to the provision of "at least one inlet for monomer feed" and "at least one inlet for water phase feed" as recited in claims 13 and 14, the "inlet" to the reactor tube is at the location of the apparatus at which the bypass tube (the left portion of the apparatus) becomes the reactor tube (the right portion of the apparatus).

Applicants (page 6, last paragraph) further argue,

"... if, as asserted in the office action, the left side of the tube (21) is a "by-pass" tube as presently claimed, then there should not be any monomer feeds or fluid feeds present nor should any of the reaction medium be present."

The Examiner respectfully disagrees and maintains that the modified apparatus of Rouzier structurally reads on the claims. For instance, claim 1 merely recites "a by-pass tube which circumvents the circulation pump." Thus, any "tube" structure that diverts material away from the circulation pump will structurally read on the claim. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior

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art structure is capable of performing the intended use, then it meets the claim. It is noted that the features upon which applicant relies (e.g., a by-pass tube being free of any monomer feeds or fluid feeds, etc.) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). It is further noted that Applicants' arguments with respect to the by-pass tube are not commensurate with the description of the by-pass tube as set forth in the specification and drawings. For instance, FIG. 1 shows that the by-pass tube portion includes an inlet for "water phase".

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449.


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The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer A. Leung

July 24, 2006 


ALEXA DOROSHENK NECKEL
PRIMARY EXAMINER